Updating Output Emission Limitations Workgroup

Department of the Interior

Thursday, March 25, 1999

Time: 8:30 AM - 4:30 PM Eastern time

I. Introductions, Review of Meeting Minutes and Agenda

- Margaret Sheppard, EPA, began the meeting by overviewing the agenda and having participants identify themselves.

- Ms. Sheppard asked the group if there were any changes for the last meeting's minutes and there were none.

II. Steam Measurement Equipment Issues

Presentation by Bob Bessette, Council of Industrial Boiler Owners (CIBO)

- Mr. Bessette explained the differences between utility and industrial boilers and their operations. He said that output-based measuring is not on the radar screen for industrial boiler operators since they do not currently have meters for it. The current trend involves third parties coming in to conduct such measurements. Industrial facilities do not have a handle on their energy bills. They only worry about controlling boilers for safety's sake, not energy efficiency, except when emissions controls are mandated. He noted that only in the last five years have digital control systems come online to assist in measurement, but variability in fuel prevents great accuracy. Also, efficiency improvements are process driven, so if ensuring proper process flow means using inefficient methods, nothing will change. Furthermore, as opposed to utilities, industry looks at an international market for its products, so competition and costs take precedence over energy efficiency. Whereas small improvements in energy efficiency can lead to millions of dollars of savings for utilities, they typically only represent possibly thousands of dollars for an industrial facility. Mr. Bessette mentioned incentives such as cogeneration and handed out the CIBO Energy Efficiency Handbook that explains what can be done to improve efficiency.

- Ms. Sheppard asked what percent of the total cost of a product is fuel. Mr. Bessette replied that the range is between three and twenty percent.

- Mike Geers, Cinergy Corp., asked if the people operating industrial boilers have other duties as well. Mr. Bessette responded that middle management that used to be at the powerhouse has moved to the corporate level. There is now just one boiler operator and no engineer or plant manager, and that person is not concerned with energy efficiency.

- Mark Hall, Trigen, stated that this group wants the perspective of the industrial boiler community on output-based allocations and efficiency opportunities. Mr. Bessette answered that the community is open to anything with a justifiable cost, meaning a payback of three and a half

years. As for efficiency opportunities, he expressed concern about the ability to calculate energy efficiency with current metering systems and process variability.

- Mr. Geers mentioned that the operating philosophy of industrial boilers needs to change such that energy production is viewed as a discrete profit center. Mr. Bessette said that this will only occur if it can be done on a voluntary basis. He noted another barrier of experienced people not being involved, since industry can not afford to keep them as much as utilities can.

Presentation by Mark Hall, Trigen

- Mr. Hall talked about the details of steam metering. He mentioned a presentation that Trigen prepared for the EPA that can be found on the EPA website (http://www.epa.gov/acidrain/noxsip/trigen5.pdf). He stated that much new metering technology exists, costs are down, and sales are up. He suggested that the workgroup solicit the participation of steam meter suppliers. Two overheads of Trigen's Nassau facility showed an example of steam measurement and energy use throughout the plant and externally. Also included was a sample allocation of NO_x for the ozone season.

- Mr. Bessette mentioned a company that has introduced technology that decides whether to make or buy steam based on prices.

- Mr. Hall noted some ancillary benefits to measuring steam at industrial facilities: fuel is now cheap and electricity prices are low, so there should be an ability to deploy new technology. He added that it is now more reasonable and less expensive to consider energy efficiency as a pollution prevention device with a 3 to 5 year payback if avoided costs of additional controls on the back end are considered. Furthermore, efficiency will matter after a cap and trade system begins, and early actions could be rewarded with allocations.

- Ms. Sheppard asked if the size of the boiler is an issue, for instance if the cost is a burden to a 250,000 lb/hr boiler. Mr. Hall answered that the installation of steam meters is a small cost compared to CEMS- Continuous Emissions Monitoring System.

- Dwight Alpern, EPA, asked who collects the necessary data? Mr. Hall replied that the database used to determine the budget and allocations is as accurate as any collectible data. Mr. Geers mentioned ASME and power test codes for data, but added that calibration requirements must be carefully considered since certain equipment can create problems to calibrate.

- Mr. Hall suggested that a subgroup be formed about the methodology of measurement. The subgroup will include Mr. Hall, Mr. Geers, Mr. Bessette, and Mark Spurr, International District Energy Association (IDEA).

III. Appropriateness of Comparing and Converting Steam and Electric Output

Presentation by Mark Spurr, IDEA

- Mr. Spurr presented a comparison of steam and electric outputs. He stated that a conversion factor should not be applied to electricity savings to determine steam savings. Many cogeneration methods exist, not just steam turbines, so an approach that captures this dynamism is necessary. Several figures showed the relative efficiencies and outputs of a utility steam turbine, a utility gas combined cycle turbine, and an industrial boiler. Mr. Spurr then discussed the allocation process with two pools versus one and how cogenerators would be treated in each scenario. He noted that most cogeneration units would fit into the non-Electric Generating Unit (non-EGU) pool, and they will always be classified in either one pool or the other, never in both.

Presentation by Mark Hall, Trigen

- Mr. Hall reviewed his example of the BMC Brewery for the value of thermal energy. He explained that assigning a 50 percent value to steam based on electricity may imply a discounted value, when in reality the value could be above 100 percent since, in this case, more work gets done with the same amount of fuel. As for the commercial value of thermal energy, on-site use is more efficient than electricity because it is a direct use of fuel, whereas electricity has a higher commercial value due to its transportability off-site and the economies of scale at utilities.

- Before the lunch break, Eugene Trisko, United Mine Workers of America (UMWA), expressed the preference of the UMWA toward policies that do not discriminate against retrofit pollution prevention and the preference of gross output measurement. He noted the correlation between employment and pollution prevention and the fact that once unemployed, workers tend to stay unemployed, especially from Pennsylvania down to Alabama and west to the Mississippi River. He claimed that the SIP Call is inconsistent with the EPA's record in R&D in basic pollution prevention technology and the SO_2 system. Mr. Trisko gave the example of Indiana, where consumer advocates argued that western coal would be the least cost option; UMWA stressed the disenfranchisement and unemployment of Indiana coal workers, which carries a high cost.

IV. Net or Gross Steam Output; Commercial Value of Steam

Presentation by Mark Hall, Trigen

- Mr. Hall covered the comments turned in by Joel Bluestein of the Coalition for Gas-Based Environmental Solutions. He stated that the decision whether to use net or gross output is political and societal and the difference could be large or small. He noted that Trigen prefers efficiency to pollution control, which it views as a sunk cost with no value. He defined net output as the total electricity or thermal generation minus the energy needed to operate the generating equipment. Mr. Hall explained that either way, some technologies will have an advantage over others, but the difference between gross and net output will decrease as internal energy requirement decreases with new technologies. Mr. Alpern stressed the importance of distinguishing between measures that are never included in the calculations and ones that need to be subtracted out.

- Peter Tsirigotis, EPA, asked what the ease of measurement is on a unit level for net energy. Mr. Hall answered that in a large facility, it would be harder to measure on a unit basis since units

might cross-use equipment. However, rarely will a situation occur where one unit will be in the SIP Call and one out, so that generally measurement on a facility basis suffices.

- Ms. Sheppard asked for a clearer explanation of what gets included in net output versus gross output. The group went over a diagram provided by Mr. Hall that showed where steam can be metered or calculated and what specific situations might complicate the measurement. It was agreed that a strawman should be devised that presents an allocation based on gross versus net output. Mr. Hall, Mr. Geers, and Mr. Bessette volunteered to begin working on such a document.

V. State Work on Generation Performance Standards

Presentation by Chris James, Connecticut Department of Environmental Protection

- Mr. James outlined the Northeast States for Coordinated Air Use Management (NESCAUM) Generation Performance Standards (GPS) Model Rule. He noted that the standards are output-based and the rule applies to retail suppliers, not merchants or wholesalers. The two main reasons for having a GPS are to protect health and environment during and after restructuring and to promote fair, efficient competition. Since emission rates vary, a GPS can level the playing field for long range pollutant transport. Benefits include efficient electric generation, flexibility for retail suppliers to assemble a competitive resource portfolio, and customer savings while sustaining New England's performance in the environment. Emissions to be covered are NO_x, SO_2, CO_2, CO, and Hg. The following issues were noted as key: pollutants covered, compliance period, consequences of non-compliance, generation resources included, treatment of imported power, compliance flexibility, and the review cycle. The role of the regional information system is to avoid double counting, track transactions, and involve a third party in the administration. Mr. James mentioned that he is very open to comments. The document can be found at www.nescaum.org. The deadline for comments is April 22, 1999; send comments to NESCAUM's Marika Tatsutani; 129 Portland Street; Boston, MA 02114; or via e-mail at mtatsutani@nescaum.org.

- Mr. Hall asked about the transaction costs for the management of the tracking. Mr. James said they are estimated at $300,000 per year, but it has not been discussed where this funding will come from.

- Mr. Geers stated that if a retail provider's power sales are at the GPS level, its choice for imports is limited, which would constitute regulating interstate commerce. Mr. James noted that the GPS levels are currently being met in NEPOOL and NYPOOL, but the legislature has expressed concern that some generators in the region would have to close. Mr. Geers then commented that if NO_x and SO_2 are already capped, how will the GPS lower emissions more?

- Mr. Hall stated that this group was convened to discuss technical issues. He suggested that NESCAUM should see the workgroup's work regarding combined heat and power and 50 percent thermal credit.

- Ms. Sheppard explained this presentation as a chance to hear what states are already doing and asked if the group should hear from New Jersey next. Mr. Hall mentioned that New Jersey has already made some of the political decisions concerning nuclear and renewable energy. Mr. James noted that NESCAUM is not looking to be pro-nuclear, but if nuclear licenses do not get renewed, their replacements will need to be near zero emissions.

VI. Next Steps

- Ms. Sheppard thanked the presenters. She said it was premature to schedule another meeting before a draft of the net versus gross strawman was ready, so she would follow up with that subgroup.

- Mr. Hall asked if EPA is definitely pursuing guidance still because he feels it is a good exercise. Mr. Tsirigotis responded that EPA is committed to guidance in the SIP Call, but the timing is uncertain. Ms. Sheppard added that it is currently planned for late spring and summer.

Conference Call Participants

Government—Federal and State

Margaret Sheppard, EPA/Acid Rain Division

Peter Tsirigotis, EPA/Acid Rain Division

Dwight Alpern, EPA/Acid Rain Division

Joe Bryson, EPA/Atmospheric Pollution Prevention Division

Doug Grano, EPA/Office of Air Quality, Planning and Standards

Bill Neuffer, EPA/Office of Air Quality, Planning and Standards

Jean Vernet, Department of Energy

Robert Sliwinski, New York State Department of Environmental Conservation, Division of Air Resources

Arthur Diem, New Jersey Department of Energy and Environmental Protection

Chris James, Connecticut Department of Environmental Protection

Andy Bodnarik, New Hampshire Department of Environmental Services

Utility/Electric Power Industry

Mike Geers, Cinergy Corporation

Mike Jirousek, FirstEnergy

Tom Romero, US Generating Company

Mark Hall, Trigen Energy Corporation

Other

Eugene Trisko, United Mine Workers of America

Debra Jezouit, Baker & Botts, LLP

Mark Spurr, International District Energy Association (IDEA)

Rhone Resch, Natural Gas Supply Association

Lisa Jaeger and Bob Bessette, Council of Industrial Boiler Owners (CIBO)

William Gillespie, Ozone Transport Commission (OTC)